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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/830.232

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Erwan Launay

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EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/830,232

Applicant(s)

LAUNAY ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 10/07/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-8 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 10/07/04 have been fully considered but they are not persuasive. Applicants have amended the claim of the adapted confidence information element computed "as of function of" with "as a sum of" said path confidence information elements. However, Fukumasa also further teaches this limitation. Fukumasa teaches (cited previously, note col.6, lines 3-28) wherein the adapted confidence information element (weight) is computed by the ratio between the outputs of elements of 42 and 43 in Fig.2, and wherein the combiner (13,24) computes by multiplying *each* of the output of the estimation means (22-1 ~ 22-N coupled to 41-43) with the weight. Thus, the combiner adds *each* of the products. Therefore, also shown in equation (2), (note col.7, lines 20-25) the combiner adds each of the output of the rake receiver (64-11, 64-12... in Fig.3, which similar receivers are also shown in Fig.2 (11-1...11-N). Therefore, it would have been obvious to one skilled in the art at the time of the invention to analyze that the adapted confidence information element may be computed by the sum of said path confidence information elements (weights), which are summed as disclosed by equation (2) for the purpose of taking consideration of all of the signals received by each of the estimation means (22-1 ~ 22-N coupled to 41-43). Thus, Fukumasa's combining means teaches the limitation of delivering an adapted confidence information element.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumasa et al. (Fukumasa) in view of Khayrallah et al. (Khayrallah).

Regarding claims 1 and 7, Fukumasa teaches a method and an apparatus of a device for the reception of a multicarrier signal (OFDM), formed by a set of carrier frequencies, said device implementing at least two reception paths (see Fig.2) supplied with data flows, each conveying same source symbols (as same signal is attempted to be received through different reception paths), each of said reception paths comprising estimation means (22-1 ~ 22-N coupled to 41~43) associating with each of said source symbol received, estimated path values and corresponding path confidence information (difference between output of 42 and 43 calculated at combining means), and said source symbols being conveyed by a subset of said set of carrier frequencies (as this is OFDM implementation), characterized in that said reception paths comprise means for the combination (13, 24) of said estimated path values delivering; an adapted estimated value (received signal, output of 13,24) and an adapted confidence information element

(weight) as a function of said path confidence information elements (note col.6, lines 3-28).

Although Fukumasa does not explicitly teach wherein said function is a summation function, Fukumasa teaches (cited previously, note col.6, lines 3-28) wherein the adapted confidence information element (weight) is computed by the ratio between the outputs of elements of 42 and 43 in Fig.2, and wherein the combiner (13,24) computes by multiplying *each* of the output of the estimation means (22-1 ~ 22-N coupled to 41-43) with the weight. Thus, the combiner adds *each* of the products. Therefore, also shown in equation (2), (note col.7, lines 20-25) the combiner adds each of the output of the rake receiver (64-11, 64-12... in Fig.3, which similar receivers are also shown in Fig.2 (11-1...11-N).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to analyze that the adapted confidence information element may be computed by the sum of said path confidence information elements (weights), which are summed as disclosed by equation (2) for the purpose of taking consideration of all of the signals received by each of the estimation means (22-1 ~ 22-N coupled to 41-43). Thus, Fukumasa's combining means teaches the limitation of delivering an adapted confidence information element.

However, Fukumasa does not explicitly teach, although it would be inherent to decode the signal received, a weighted-input decoding means supplied by said adapted estimated value. Khayrallah teaches, in the same field of endeavor, receiving signals using at least two antennae, demodulating and estimating the

signal received, and further, providing the output signals from a combiner (320A in Fig.4). (note col.5, lines 3-14) Therefore, it would have been obvious to one skilled in the art at the time of the invention to provide a decoder, which is coupled to a combiner (such as 320A of Khayrallah) to the combining means of Fukumasa (13, 24) for the purpose of producing a speech output or decoding the signal received, as the received signal is still coded and therefore needs to be decoded for further processing.

Regarding claim 2, Fukumasa in view of Khayrallah teach all subject matter claimed, as applied to claim 1. Fukumasa further teaches said estimation means (22-1 ~ 22-N coupled to 41~43) comprise means for the estimation of a transmission channel, delivering said path confidence information elements, as explained above.

Regarding claim 5, Fukumasa in view of Khayrallah teach all subject matter claimed, as applied to claim 1. Fukumasa further teaches the reception device implements at least two antennas, supplying distinct reception paths.(see 61-1 and 61-2 in Fig.1)

Regarding claim 6, Fukumasa in view of Khayrallah teach all subject matter claimed, as applied to claim 1. Fukumasa further teaches a first module shaping and demodulating (21-1 ~ 21-N) the received signal and a second module (22-1

~ 22-N coupled to 41~43) determining said estimated path values and said corresponding confidence information elements, said device furthermore comprising a single module (13, 24) supplied by said second module, delivering said adapted estimated value. And although Fukumasa does not teach a weighted-input decoding means supplied with said adapted estimated value, Khayrallah teaches this limitation, as explained in regards to claim 1.

Regarding claim 8, Fukumasa in view of Khayrallah teach all subject matter claimed, as applied to claim 1. Fukumasa further teaches wherein the reception of data belongs to the transmission of data signals application as the radio receiver receives speech signals which are transmitted as data signals. (note abstract)

### ***Allowable Subject Matter***

3. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome the claim objections.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
1/23/05

  
YOUNG T. TSE  
PRIMARY EXAMINER